

H.A

Notice of Allowability

Application No.

10/825,554

Examiner

Rene Garcia, Jr.

Applicant(s)

YOKOYAMA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Preliminary Amendment Filed on 06 July 2004.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>4/14/04; 10/22/04</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ian Volek on 17 March 2006 (Ian Volek was in contact with Douglas Holtz [assigned attorney] – who authorized examiner's amendment via Fax Received to USPTO Office on 17 March 2006).

The application has been amended as follows:

Title:

Delete title in its entirety and replace with the following:

Ink Jet Printer With Ultraviolet Curable Ink, Ultraviolet Irradiation Device, And
Maintenance Station With Ultraviolet Irradiation Masking

In the Abstract:

Delete Abstract in its entirety and insert the following:

ABSTRACT OF THE DISCLOSURE

An ink jet printer includes a carriage having a recording head for jetting ultraviolet curable ink and an ultraviolet irradiating device for curing an ink jetted on the recording medium with irradiation of ultraviolet rays such that an image is formed by scanning the carriage; and a maintenance unit for performing maintenance on the recording head at predetermined timing. It also includes a control section for controlling the maintenance unit so as to be converted to

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a masking state which becomes a head maintenance disabling state when an image is formed, and for controlling the maintenance unit so as to be converted to a non-masking state which becomes a head maintenance enabling state after securing a non-irradiating state in which the ultraviolet rays are not irradiated on the maintenance unit, by a function provided by a unit other than the maintenance unit when the head maintenance is performed.

In The Claims:

Amend Claims 1-4, 6-11 & 15-20 as follows:

1. An ink jet printer comprising:

a recording head for jetting ultraviolet curable ink on a recording medium;

an ultraviolet irradiating device for curing the ultraviolet curable ink jetted on the recording medium with irradiation of the ultraviolet rays;

a carriage for scanning to form an image on the recording medium, the carriage ~~having~~ including the recording head and the ultraviolet irradiating device;

a maintenance unit for performing maintenance on the recording head at a predetermined timing, the maintenance unit ~~having a function~~ being switchable between a masking state in which the ultraviolet rays are masked and a non-masking state in which the ultraviolet rays are not masked, the masking state ~~becoming~~ being a head maintenance disabling state in which head maintenance is not allowed, and the non-masking state ~~becoming~~ being a head maintenance enabling state in which the head maintenance is allowed; and

a control section for controlling the maintenance unit so as to be converted to the masking state which ~~becomes~~ is the head maintenance disabling state when an image is formed,

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and for controlling the maintenance unit so as to be converted to the non-masking state which ~~becomes~~ is the head maintenance enabling state after securing a non-irradiating state in which the ultraviolet rays irradiated from the ultraviolet irradiating device are not irradiated on the maintenance unit, by a function provided by a unit other than the maintenance unit, when the head maintenance is performed.

2. The ink jet printer of claim 1, wherein the maintenance unit ~~has~~ comprises a masking blade at a side facing the ultraviolet irradiating device, and the masking blade ~~being~~ is movable between a masking position in which the ultraviolet rays irradiated from the ultraviolet irradiating device are masked and an ~~evacuating~~ evacuated position in which the ultraviolet rays are not masked, and

wherein the control section controls the maintenance unit so as to be converted to the masking state which ~~becomes~~ is the head maintenance disabling state when the image is formed, by moving the masking blade to the masking position, and controls the maintenance unit so as to be converted to the non-masking state which ~~becomes~~ is the head maintenance enabling state, by moving the masking blade to the ~~evacuating~~ evacuated position after securing the non-irradiating state ~~in which the ultraviolet rays irradiated from the ultraviolet irradiating device are not irradiated on the maintenance unit~~, by the function provided by the unit other than the maintenance unit, when the head maintenance is performed.

3. The ink jet printer of claim 1, wherein the maintenance unit is movable between a maintenance region in which the head maintenance is performed within a scanning area of the

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carriage, and an evacuating region in which the maintenance unit is located outside the scanning area of the carriage so as not to be exposed to the ultraviolet rays irradiated from the ultraviolet irradiating device, and

wherein the control section ~~for~~ controls the maintenance unit so as to be converted to the masking state which ~~becomes~~ is the head maintenance disabling state when the image is formed, by moving the maintenance unit to the evacuating region, and controls the maintenance unit so as to be converted to the non-masking state which ~~becomes~~ is the head maintenance enabling state, by moving the maintenance unit into the maintenance region after securing the non-irradiating state ~~in which the ultraviolet rays irradiated from the ultraviolet irradiating device are not irradiated on the maintenance unit~~, by the function provided by the unit other than the maintenance unit, when the head maintenance is performed.

4. The ink jet printer of claim 1, wherein ~~the function provided by~~ the unit other than the maintenance unit includes a masking device for switching between an irradiating state and the non-irradiating state of the ultraviolet rays.

6. The ink jet printer of claim 1, wherein ~~the~~ an ultraviolet light source in the ultraviolet irradiating device includes any one of a high-pressure mercury lamp, a metal halide lamp, a hot cathode tube, a cold cathode tube, an LED, a Microwave lamp, an excimer lamp, and a low-pressure mercury lamp.

7. The ink jet printer of claim 1, wherein the ultraviolet curable ink jetted from the recording head is a cationic curable ink.

8. The ink jet printer of claim 2, wherein the maintenance unit is movable between a maintenance region in which the head maintenance is performed within a scanning area of the carriage, and an evacuating region in which the maintenance unit is located outside the scanning area of the carriage so as not to be exposed to the ultraviolet rays irradiated from the ultraviolet irradiating device, and

wherein the control section ~~for~~ controls the maintenance unit so as to be converted to the masking state which ~~becomes~~ is the head maintenance disabling state when the image is formed, by moving the maintenance unit to the evacuating region, and controls the maintenance unit so as to be converted to the non-masking state which ~~becomes~~ is the head maintenance enabling state, by moving the maintenance unit into the maintenance region after securing the non-irradiating state ~~in which the ultraviolet rays irradiated from the ultraviolet irradiating device are not irradiated on the maintenance unit~~, by the function provided by the unit other than the maintenance unit, when the head maintenance is performed.

9. The ink jet printer of claim 8, wherein ~~the function provided by~~ the unit other than the maintenance unit includes a masking device for switching between an irradiating state and the non-irradiating state of the ultraviolet rays.

10. The ink jet printer of claim 2, wherein ~~the function provided by~~ the unit other than the maintenance unit includes a masking device for switching between an irradiating state and the non-irradiating state of the ultraviolet rays.

11. The ink jet printer of claim 3, wherein ~~the function provided by~~ the unit other than the maintenance unit includes a masking device for switching between an irradiating state and the non-irradiating state of the ultraviolet rays.

15. The ink jet printer of claim 2, wherein ~~the~~ an ultraviolet light source in the ultraviolet irradiating device includes any one of a high-pressure mercury lamp, a metal halide lamp, a hot cathode tube, a cold cathode tube, an LED, a Microwave lamp, an excimer lamp, and a low-pressure mercury lamp.

16. The ink jet printer of claim 3, wherein ~~the~~ an ultraviolet light source in the ultraviolet irradiating device includes any one of a high-pressure mercury lamp, a metal halide lamp, a hot cathode tube, a cold cathode tube, an LED, a Microwave lamp, an excimer lamp, and a low-pressure mercury lamp.

17. The ink jet printer of claim 4, wherein ~~the~~ an ultraviolet light source in the ultraviolet irradiating device includes any one of a high-pressure mercury lamp, a metal halide lamp, a hot cathode tube, a cold cathode tube, an LED, a Microwave lamp, an excimer lamp, and a low-pressure mercury lamp.

18. The ink jet printer of claim 5, wherein ~~the~~ an ultraviolet light source in the ultraviolet irradiating device includes any one of a high-pressure mercury lamp, a metal halide lamp, a hot cathode tube, a cold cathode tube, an LED, a Microwave lamp, an excimer lamp, and a low-pressure mercury lamp.

19. The ink jet printer of claim 2, wherein the ultraviolet curable ink jetted from the recording head is a cationic curable ink.

20. The ink jet printer of claim 3, wherein the ultraviolet curable ink jetted from the recording head is a cationic curable ink.

REASON FOR ALLOWANCE

2. Claims 1-20 are allowed.

The following is an examiner's statement of reasons for allowance: The primary reason for the allowance of claims 1-20 is the inclusion of the limitations of an ink jet printer including a maintenance unit for performing maintenance on the recording head at a predetermined timing, the maintenance unit being switchable between a masking state in which the ultraviolet rays are masked and a non-masking state in which the ultraviolet rays are not masked, the masking state being a head maintenance disabling state in which head maintenance is not allowed, and the non-masking state being a head maintenance enabling state in which the head maintenance is allowed; and a control section for controlling the maintenance unit so as to be converted to the masking state which is the head maintenance disabling state when an image is formed, and for controlling the maintenance unit so as to be converted to the non-masking state which is the head

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maintenance enabling state after securing a non-irradiating state in which the ultraviolet rays irradiated from the ultraviolet irradiating device are not irradiated on the maintenance unit, by a function provided by a unit other than the maintenance unit, when the head maintenance is performed. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

CONCLUSION

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shirakawa (US 2003/0011670) includes ultraviolet curable ink and ultraviolet radiation units provided on both sides of a print head. The ultraviolet radiation units are provided with shutters to shield the ultraviolet radiation to outside the ultraviolet radiation unit. Finger et al. (US 7,009,630) includes an ultraviolet curable ink and ultraviolet light source and shutters to enclose ultraviolet light source. Ishikawa (US 2003/0189609) includes an ultraviolet curable ink, ultraviolet light source and shutter to shut out ultraviolet light from the maintenance station.

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COMMUNICATIONS WITH THE USPTO

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rene Garcia, Jr. whose telephone number is (571) 272-5980. The examiner can normally be reached on M-F 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rene Garcia, Jr.
17 March 2006



K. FEGGINS
PRIMARY EXAMINER